a plurality of said nodes on the network to a destination user via a plurality of alternate routes by exchanging call set-up messages through the network;

c) collecting diagnostics data from each node identifying at least the node and physical trunk group visited on [for] each attempted route through the network to said destination user and returning said diagnostics data in said call set-up messages; and

d) analyzing the said diagnostics data to identify the source of a failure.

13(Amended). A method [as claimed in claim 9, wherein] of detecting and diagnosing faults in a network having a plurality of nodes through which switched virtual connections can be established, comprising the steps of:

a) entering a diagnostics mode for a given user when a suspected fault is detected;

b) attempting to establish a virtual connection originating at said given user through the network to a destination user via a plurality of alternate routes;

c) collecting diagnostics data for each attempted route through the network to said destination user;

d) analyzing the said diagnostics data to identify the source of a failure; and

e) automatically deactivating said diagnostics mode [is automatically deactivated] after a predetermined number of connection setups originating from said given user.

14.   A method as claimed in claim 9, wherein said diagnostics data are carried in an information element of [a] said call set-up messages.

15(Amended). A method [as claimed in claim 14,] of detecting and diagnosing faults in a network having a plurality of nodes through which switched virtual connections can be established, comprising the steps of:

a) entering a diagnostics mode for a given user when a suspected fault is detected;

b) attempting to establish a virtual connection originating at said given user through the network to a destination user via a plurality of alternate routes;

c) collecting diagnostics data for each attempted route through the network to said destination user, said diagnostics data being carried in a call information element of a setup message; and

d) analyzing the said diagnostics data to identify the source of a failure; and wherein said information element is a call trace element.

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5 20.   A method as claimed in claim 9, wherein said nodes contain hop-by-hop routing tables.

21.   A packet switched data communications network, comprising:

a) a plurality of interconnected network nodes;

b) a plurality of users connected to at least some of said network nodes;

c) means for attempting to establish virtual connections between users over a plurality of alternate routes through said network by exchanging call set-up messages through a plurality of said nodes in the network;

d) means at each node on said alternate routes for inserting diagnostics data identifying at least the node and physical trunk group visited in said call set-up messages while in a diagnostics mode and returning said diagnostics data to an originating node;

[d means for recording, in a diagnostic mode, attempts at establishing routes through said network;] and

e) diagnostic means for analyzing said [recorded attempts] diagnostics data returned in said call set-up messages to identify the source of a failure.

22.   A packet switched data communications network [as claimed in claim 21], comprising:

a) a plurality of interconnected network nodes;

b) a plurality of users connected to at least some of said network nodes;

c) means for attempting to establish virtual connections between users over a plurality of alternate routes through said network;

d) means for recording, in a diagnostic mode, attempts at establishing routes through said network; and

e) diagnostic means for analyzing said recorded attempts to identify the source of a failure;

wherein said nodes include service cards having a call control unit and a signalling stack for setting up a virtual connection, and a service card managing a virtual connection collects diagnostics information for said recorded attempts at establishing routes through said network.

26.   A packet switched network as claimed in claim 21, wherein said [switches] nodes are ATM switches.

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